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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/564,929

09/11/2006

Franck Thudor

PF 030121

2337

24498

7590

08/18/2009

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EXAMINER

DUONG, DIEU HIEN

ART UNIT

PAPER NUMBER

2821

MAIL DATE

DELIVERY MODE

08/18/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/564,929	Applicant(s) THUDOR ET AL.	
	Examiner DIEU HIEN T. DUONG	Art Unit 2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1-3,5-14.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-14 is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/06/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 08/06/2009 has been entered. In virtue of this submission, claims 1-3 and 5-14 are currently presented in the instant application.

Priority

2. Acknowledgement is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Information Disclosure Statement

3. The information disclosure statement(s) (IDS) submitted on 08/06/2009 in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is considered by the examiner.

If applicant is aware of any prior art or any other co-pending application not already of record, he/she is reminded of his/her duty under 37 CFR 1.97 to disclose the same.

Claim Rejections - 35 USC § 103

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4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-3 and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Louzir (US 6,798,386 B1 cited by applicant).

Regarding claim 1, Louzir discloses, in Figure 3, a planar antenna with diversity of radiation realised on a substrate comprising

a slot of closed shape (3a) dimensioned to operate on a mode higher than a fundamental mode, and

at least one feed line (4a, 4b) couple to said slot according to a line-slot transition,

said antenna comprising a first feed-line (3a) coupled in a zone of the slot forming first open circuit and a second feed-line (4b) placed at a distance $d = (2n+1) \lambda_s / 4$ from said first feed-line (4a), where n is an integer greater than or equal to zero, said second feed line being coupled in a zone of the slot forming a first short-circuit,

said antenna further comprising means (21) for selecting for an access either the first feed line (4a), producing in the directions of main radiation a first radiation pattern, or the second feed line (4b), producing in the directions of main radiation a second

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radiation pattern, said second radiation pattern being complementary of the first radiation pattern.

Louzir does not disclose the perimeter of the slot being selected such that $p = \kappa \lambda_s$ where p is the perimeter of the slot, κ is an integer greater than 1 and λ_s is the guided wavelength in the slot. However, such difference is not patentable merits since it would have been obvious to one having ordinary skill in the art at the time the invention was made to select the length of the perimeter of the slot to obtain a desired frequency and such modification would have involved a mere change in the length of the perimeter of the slot of the antenna. A mere change in the length of the perimeter of the slot is generally recognized as being within level skill in the art.

Note that:

With $\kappa = 3$, $p = \kappa \lambda_s = 3 \lambda_s$;

With $n=1$, $d = (2n+1) \lambda_s / 4 = 3 \lambda_s / 4 = p/4$ (since $3 \lambda_s = p$)

The distance $d = (3 \lambda_s / 4)$ is the distance of the second feed-line (4b) placed from the first feed-line (4a) in Figure 3 of Louzir.

Regarding claims 2-3, as applied to claim 1, Louzir discloses, in Figure 3, wherein the first and second feed-lines (4a, 4b) terminates in second and third open circuits and are each coupled to the slot according to the line-slot transition.

Louzir does not disclose the length of each feed line after the line-slot transition being equals to $(2k'+1) \lambda_m / 4$ where λ_m is the guided wavelength in the each feed-line and k' is a positive or null integer. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select the lengths of the

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feed lines and such modification would have involved a mere change in the length of a component. A change in length is general recognize as being within the level of ordinary skill in the art of antenna.

Regarding claims 5-6, as applied to claim 1, Louzir discloses, in Figure 3, where the feed-lines (4a, 4b) are realised in microstrip technology (see col. 3, lines 55-58) or coplanar; where the shape of the slot (3a) is an annular shape.

Regarding claims 7-8, Louzir discloses, in Figure 3, wherein the slot (3a) and the feed-lines (4a, 4b) are equidistant from an axis of symmetry of the slot (3a) or one of the feed-lines (4a, 4b) is positioned according to an axis of symmetry of the slot (3a).

Louzir does not disclose that the slot being of rectangular shape. However, such difference is not of patentable merits since it would have been obvious to one having ordinary skill in the art at the time the invention was made to select the shape of the slot and such modification would have involved a mere change in the shape of a component. A change in shape is general recognize as being within the level of ordinary skill in the art of antenna.

Regarding claim 9, as applied to claim 1, Louzir discloses, in Figure 3, wherein the fed lines (4a, 4b) are connected to a transmission/reception means (see col. 3, lien 62 to col. 4, line 2) enabling a diversity of reception.

Allowable Subject Matter

6. Claims 10-14 are allowed.

7. The following is a statement of reasons for the indication of allowable subject matter:

Prior art fails to disclose a planar antenna with diversity of radiation realised on a substrate comprising a slot of closed shape dimensioned to operate on a mode higher than a fundamental mode; the perimeter of the slot being selected such that $p = k\lambda_s$ wherein p is perimeter of the slot, k is an integer greater than or equal to 2 and λ_s is the guided wavelength; a first feed-line coupled in zone of the slot forming first open circuit; said second feed line being coupled in a zone of the slot forming a first short-circuit; said each feed-line is couple magnetically to the slot according to a tangential line-slot transition, in combination with the remaining claim limitations as in claim 10 (claims 11-14 are allowed since they are dependent on claim 10).

Inquiry

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIEU HIEN T. DUONG whose telephone number is (571)272-8980. The examiner can normally be reached on Monday - Friday, from 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W. Owens can be reached on 571-272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

08/13/09

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DD

/Douglas W Owens/

Supervisory Patent Examiner, Art Unit 2821

August 14, 2009